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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/804,029

03/19/2004

Bayram Arman

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27182

7590

10/12/2006

PRAXAIR, INC.

LAW DEPARTMENT - M1 557

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EXAMINER

DOERRLER, WILLIAM CHARLES

ART UNIT

PAPER NUMBER

3744

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/804,029

Applicant(s)

ARMAN ET AL.

Examiner

William C. Doerrler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1,2,7,9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarwinski et al in view of either Basiulis or Nelson.

Sarwinski et al disclose applicant's basic inventive concept, a superconducting magnet system with a cryocooler 48 which cools shield 30 using neon, substantially as claimed with the exception of using a wicking material in the heat pipe. Basiulis and Nelson each show this feature to be old in the cryogenic heat pipe art. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention from the teaching of either Basiulis or Nelson to modify the cryogenic superconducting

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magnet cooling system of Sarwinski et al by using a wicking material in the heat pipe to ensure liquid distribution, which promotes proper functioning of the heat pipe.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breneman et al in view of either Basiulis or Nelson.

Breneman et al disclose applicant's basic inventive concept, a superconducting magnet system (abstract) with a cryocooler 42 which cools shield 32,34 and a cryogen vessel 52 with a heat pipe 66,68 to cool the shield, substantially as claimed with the exception of using a wicking material in the heat pipe. Basiulis and Nelson each show this feature to be old in the cryogenic heat pipe art. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention from the teaching of either Basiulis or Nelson to modify the cryogenic superconducting magnet cooling system of Breneman et al by using a wicking material in the heat pipe to ensure liquid distribution, which promotes proper functioning of the heat pipe. In regard to claim 4, inner and outer shield 32 and 34 are mentioned in the written description, with figure 1 showing more than 2 shield layers. In regard to claim 8, line 5 of column 4 states that conductor 48 can be made from a thermally conductive aluminum alloy, which is seen as a bus bar. In regard to claim 10 the cryogen vessel 52 is in fluid contact with the heat pipe, so it is therefore seen in direct thermal contact.

Claims 3-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarwinski et al in view of either Basiulis or Nelson as applied to claims 1,2,7,9 and 10 above and further in view of Lehmann et al.

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Sarwinski et al, as modified, disclose applicant's basic inventive concept, a superconductor magnet cooling system with a cryocooler and a cryogen vessel used to cool a thermal shield, substantially as claimed with the exception of using a bus bar to provide thermal conduction. Lehmann et al show bus bars to be old in the cryocooler art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Lehmann et al by using a bus bar to ensure efficient thermal conduction between the cryocooler and the heat shield. In regard to claims 3-6, Official Notice is taken that multi-layered heat shields are well known in the cryogen storage art and as such would have been obvious to an ordinary practitioner in the art to reduce the heat influx into the cryogen tank to preserve the cryogen in a liquid state.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Doerrler whose telephone number is (571) 272-4807. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William C Doerrler
Primary Examiner
Art Unit 3744

WCD